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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

December 19, 1994

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William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, N.W., Room 222
Washington, D.C. 20554

Re: Ex Parte Communication
PR Docket No. 93-61
Automatic Vehicle Monitoring

DOCKET FILE COPY ORIGINAL

Dear Mr. Caton:

On December 14, 1994, counsel for MobileVision filed several *ex parte* letters in the above-referenced proceeding. The first, referenced as a "Notice of Ex Parte Contact," gives notification of a meeting with Ruth Milkman, Chief Legal Advisor to Chairman Hundt, and has attached to it several charts concerning the interim automatic vehicle monitoring ("AVM") rules. The second, referenced as an "Ex Parte Submission," addresses several issues in this proceeding of importance to MobileVision: interconnected voice and transition rules that enable MobileVision to achieve exclusivity in markets for which it received licenses to operate on a shared basis.

The two MobileVision *ex partes* contain numerous mischaracterizations and important oversights. Indeed, the two *ex partes* constitute something of a time warp as they have the flavor of filings that were made over a year ago prior to Commission orders reaffirming the shared nature of licensing under the interim rules. Pinpoint responds to the various assertions of MobileVision below. Moreover, as Pinpoint explains below, *four of the five* wide-area AVM proponents in this proceeding have stated in the record that they can share spectrum with wide-area AVM proponents.

A. Operation under the Interim Rules

In the "Notice of Ex Parte Contact," MobileVision asserts that Pinpoint's system is not designed consistently with the interim AVM rules. MobileVision goes on to suggest that Pinpoint has thereby "introduced problems to [the] rulemaking proceeding." These assertions are nothing short of astounding in light of very clear Commission pronouncements to the

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contrary. Indeed, as explained below, if there is a system that was not designed consistent with the current rules, it is the MobileVision system, not Pinpoint's ARRAY™.

1. Licensing under the interim rules requires sharing; four of the five wide-area AVM proponents have stated they can share

In the *Notice of Proposed Rulemaking* ("*NPRM*") in Docket 93-61, the Commission stated unequivocally that licensing in the AVM bands under the interim rules has been on a shared basis. 8 F.C.C.Rcd 2502, 2504 n. 29 (1993). Indeed, in response to a claim by Teletrac "that the Licensing Division has erred in licensing [AVM] systems on a non-exclusive basis," the FCC stated that "[w]e do not find sufficient evidence in any of the Commission's past proceedings to support this claim." *Id.*

Several months later, the Commission denied Teletrac's Application for Review of several licenses granted in the 902-928 MHz band. *BP Oil Company*, 8 F.C.C.Rcd 7320 (1993). Teletrac had argued that the interim rules provide for exclusive licensing -- the same arguments that underlie MobileVision's "*Ex Parte* Submission." In rejecting these contentions, the Commission reiterated that

- "[W]e have consistently interpreted Section 90.239 to permit sharing, and have issued hundreds of licenses on a shared basis," *id.* at 7321, and
- "[A]s discussed at length in the [*NPRM*], we disagree with PacTel's assertion that only one wideband system per segment was intended to be accommodated in the 904-912 and 918-926 MHz bands." *Id.*

In light of the shared nature of the band, Pinpoint designed its system to support the high location capacity that would allow time sharing with other wide-area AVM licensees to be a practical option. Pinpoint's experimental system has confirmed the efficacy of its design and the volume of location traffic that can be achieved.

Despite the condition on its licenses that it share, MobileVision has maintained that it cannot share, hopeful of converting its huge cache of non-exclusive authorizations into an exclusive bounty for its much-lower-location-capacity system. Indeed, MobileVision comes precariously close to saying as much in the closing lines of its *Ex Parte* Submission when it admits that "capacity is a contributing factor to [the] need [for exclusivity]." *Ex Parte* Submission at 8.

MobileVision asserts that sharing cannot occur due to the "laws of physics." Id. While Pinpoint agrees with MobileVision that *simultaneous* transmission in the same geographical area *could* lead to interference, the laws of physics also permit Pinpoint to achieve the capacities of 1500-3000 locations per second that form the very basis of its time-sharing proposals and preclude the need for simultaneous operation in order to share and obtain satisfactory location capacity and a high degree of accuracy in urban settings. Paradoxically, after failing to exploit these same laws of physics in as successful a manner as Pinpoint, MobileVision tries to invoke them to excuse its failure.

As long as MobileVision preserves the hope that its licenses will be converted to exclusivity, it has no incentive to even face the issue of whether sharing is possible. Thus, its rapid dismissal of the potential for sharing among wide-area systems is highly suspect. Moreover, sight should not be lost of the fact that *four of the five wide-area AVM licensees in this proceeding have stated that they could share*. Pinpoint and Uniplex have said that they could time-share spectrum with other wide-area AVM licensees.¹ Southwestern Bell Mobile Systems, in a pleading filed in this docket on June 29, 1993, in opposition to Teletrac's application for a freeze on AVM licensing stated unequivocally that:

Many licensees, however, have already gone on record to state that their technologies can function in a multi-operator shared environment without harm. [footnote citing to Pinpoint] *SBMS shares their view*. Furthermore, there is no exclusive wideband allocation in the AVM band.²

¹ Letter of McNeil Bryan, President, Uniplex Corporation, to William F. Caton, Secretary, FCC, dated September 30, 1994 (filed, PR Docket No. 93-61, October 6, 1994).

² Informal Comments of Southwestern Bell Concerning North American Teletrac and Location Technologies Inc.'s Application for Freeze, PR Docket No. 93-61, at 6 (June 29, 1993) (emphasis added) (footnotes omitted). Southwestern Bell included an engineering affidavit opining that:

technology can operate reliably in the shared radio environment of the upper LMS band in the 902-928 MHz ISM band, given today's environment and the existence of current licensees. . . . SBMS' LMS system can operate

(continued...)

Excerpts of the Southwestern Bell filing are attached hereto. Finally, Teletrac has said in several filings, beginning with its January 26, 1994, *ex parte*,³ that it could share on a spatial diversity basis.⁴ It is only when these latter two parties sensed that the Commission might grant them exclusivity that they have backed away from support for sharing.

2. Licensing under the current rules contemplates systems that use 8 MHz bandwidth for pulse ranging techniques and does not provide for forward link functions on separate channels outside that bandwidth

Not only has Pinpoint, unlike MobileVision, designed its system to comply with the sharing requirement, but it has designed its system to operate within the 8 MHz bandwidth requirement of the interim rules. 47 C.F.R. 90.239(c). Admittedly, Pinpoint would like the opportunity to operate the pulse-ranging location function with 16 MHz of spectrum, and has sought rule changes in this proceeding to that effect. Nonetheless, Pinpoint stands ready to install its systems consistent with the current FCC requirement that systems utilize a bandwidth of 8 MHz. Further, because the Commission's rules do not authorize separate spectrum outside the 8 MHz bandwidth for a forward link, Pinpoint designed its system to provide forward link functions within the same 8 MHz bandwidth as the location function.

MobileVision, in contrast, has never intended to operate its pulse-ranging system with a bandwidth of 8 MHz. Early in this proceeding, MobileVision's filings make clear that it requires only 4 MHz for its location function. *E.g.*, Comments of MobileVision, PR Docket No. 93-61 at 30 (June 29, 1993). In addition, in its *ex parte* of October 21, 1993,

²(...continued)

reliably in the shared radio environment that exists today co-located with other systems currently operating in the same bands.

Id., Affidavit of Keith Rainer at 2-3.

³ Letter from John Lister, President, Teletrac, to Ralph Haller, Chief, Private Radio Bureau, FCC, dated January 26, 1994.

⁴ Under Pinpoint's Modified NPRM Band Plan, the 918-926 MHz sub-band would be available for wide-area AVM on a time-shared basis. The 904-912 MHz band would be made available on a shared basis other than time sharing. Thus, it would appear that the Modified NPRM Band Plan could accommodate the types of sharing discussed by these four wide-area AVM proponents.

MobileVision made lucid that it seeks considerable voice capacity within its 8 MHz authorizations, *as many as 375 voice channels*.⁵ Obviously, if MobileVision were to deploy this large number of voice channels, a considerable portion of the 8 MHz channel licensed to it would be devoted to functions other than pulse-ranging vehicle location on a permanent basis. Such a system design, where voice plays the *central* role, is not consonant with the Commission's objectives in the 1974 Report and Order when it allocated spectrum in the 902-928 MHz band for AVM. Indeed, the Commission stated then that it contemplated the AVM service operating in combination with *other* radiocommunications systems. *Car Locator Systems*, 30 R.R.2d 1665, 1672 (1974).

Moreover, unlike Pinpoint, MobileVision designed its system to utilize narrowband channels outside the 8 MHz bandwidths set aside for pulse ranging systems. Specifically, MobileVision, licensed to perform pulse ranging functions in 918-926 MHz, sought spectrum outside that sub-band for its forward link functions. The channels it is licensed to use are not set aside by the current rules for such purposes.⁶

3. The current rules plainly provide for voice communications on a basis much more limited than contemplated by MobileVision

Furthermore, as is clear from its "Ex Parte Submission" and earlier filings (*e.g.* its October 21, 1993 *ex parte*), MobileVision has always intended to provide voice communications to an extent far beyond that authorized under the interim rules or proposed in the *NPRM*. For example, MobileVision acknowledges on page 5 of the Ex Parte Submission that it seeks to provide voice and data services "on an unrestricted basis."

The interim rules make clear that only voice communications "relating to vehicles being located" are permitted. 47 C.F.R. § 90.239(a). *See also id.* § 90.7 ("status and

⁵ Letter from Marnie K. Sarver, Counsel for MobileVision, to William F. Caton, Acting Secretary, attachment at 2 (MobileVision-1020-2), dated October 21, 1993.

⁶ Pinpoint does not suggest that the Commission did not properly grant MobileVision the authority to use these frequencies (presumably on a waiver basis). Pinpoint's purpose is merely to rebut MobileVision's fantastic claim that it, not Pinpoint, designed its system consistently with the current rules *as written*. At the same time, the predominance of voice in MobileVision's PCS-like service concept may make it unattractive or even impossible for MobileVision to share as its licenses require.

instructional messages related to the units involved"). The Report and Order adopting the current rules notes that

Here, the primary purpose will be to provide vehicle location information, and supplemental data message traffic incident to the location function will be allowed only on a secondary basis, *i.e.*, there must be a primary vehicle location requirement.

30 R.R. 2d at 1671. The *NPRM* proposed to allow "status and instructional messages related to the units involved." 8 F.C.C. Rcd at 2503. Thus, the need for any voice messages to be integrally related to the vehicle location *function* is clear under the current and proposed rules.

MobileVision, however, adopts an expansive definition that takes the language of the current and proposed rules beyond the breaking point. For example, MobileVision claims that the purpose of the existing rules was to develop "services, including voice and data, that the public (market) defined as desirable." Ex Parte Submission at 2. Again, MobileVision asserts that "[v]oice and data *services* were permitted under [the] Interim Rules." *Id.* (emphasis added).

MobileVision dismisses the restriction in the current rules of voice operations to "status and instructional messages related to the vehicles involved" as "descriptive only." *Id.* MobileVision proceeds to distort the English language. For it, "messages related to the vehicles being located" means "messages to and from vehicles, regardless of the connection to the location function." Hence, MobileVision's desire for voice "on an unrestricted basis." Ex Parte Submission at 5. As demonstrated by the excerpt quoted above from the Report and Order adopting the interim rules, the Commission clearly did not have such an expansive purpose in mind, but contemplated voice and data services "incidental" and "related" to the vehicles being located.

Rightly cognizant of the fact that its proposed voice services appear strikingly similar to PCS services, MobileVision filed a letter with Bruce Franca of the Office of Engineering and Technology on December 14, 1994, in which it purported to "make clear that [MobileVision's proposed voice services] are clearly differentiated from PCS type services." As explained below, MobileVision merely has confirmed that voice communications may be coupled with vehicle location and has not assuaged justified concerns that it seeks a free ticket for a PCS license. One, MobileVision proposes that the location function must be capable of demonstrating an accuracy of approximately 400 feet on 81 % of the location attempts. Apart from the fact that this level of accuracy is insufficient for many IVHS

applications in urban areas, especially given MobileVision's low location rate, all this suggests is that *when the system is used for vehicle location*, it will operate with some minimum accuracy. This requirement says *nothing* about what the primary purpose of the system will be.

Two, MobileVision suggests that each time a voice call is connected, a location pulse shall be transmitted from the mobile. This arrangement is as equally descriptive of a situation where the vehicle location is related to the mobiles engaging in voice communications as with the restricted type of voice and data communications contemplated in the interim rules and the *NPRM*.

Three, MobileVision proposes that the base stations and mobiles will operate at lower powers when engaging in voice communications. Apart from increasing the potential for susceptibility to interference from Part 15, Pinpoint fails to see how this contributes to ensuring that voice communications are incidental to vehicle location. In short, MobileVision has failed to offer any justification for the type of voice operations it seeks.

* * *

In the final analysis, it is clear that Pinpoint, not MobileVision, designed its system consistently with the interim rules. Ironically, however, it is MobileVision, and not Pinpoint, that seeks exclusivity. Indeed, MobileVision goes so far as it insist that rules be adopted that preclude systems like Pinpoint. In sharp contrast, Pinpoint has repeatedly advocated solutions in this band that would accommodate all of the wide-area AVM system types that have been proposed in this proceeding.

A few words are also in order regarding MobileVision's new claims that the PRB provided constant guidance as it designed its system for voice interconnection and exclusive operation. Ex Parte Submission at 4. After reviewing the Ex Parte Submission, we went back through all of MobileVision's filings in this proceeding for the past two-and-one-half years. Our review confirmed that this is the first time that MobileVision has suggested that it received direct Commission guidance regarding these aspects of its system design. Indeed, to Pinpoint, this allegation is remarkable as Pinpoint's founders met with the staff from the Office of Engineering and Technology ("OET") and Private Radio Bureau ("PRB") in the autumn of 1989 and on November 21, 1991. They were informed that licensing in this band was on a shared basis. Extensive use of voice, as proposed by MobileVision, is antithetical to sharing.

B. The Supposed Need for Voice Alleged by MobileVision Can Be Met in Other Ways

In its Ex Parte Submission, MobileVision rolls out arguments in support of voice that it used earlier in this proceeding. Namely, MobileVision alleges that AVM will fail to achieve market penetration without interconnected voice. As Pinpoint has explained earlier, it does not assess the market in the same way. Nor does Southwestern Bell. Until just a few days ago, neither did Teletrac or Uniplex. Even now, it is not clear the extent to which these last two licensees seek to have voice interconnection capabilities. The letter submitted by MobileVision and signed by Teletrac and Uniplex simply refers "to interconnection." It does not specifically address voice.

In any event, allowing voice capabilities in the 902-928 MHz band is hardly the only way that interconnected voice could be coupled with vehicle location. MobileVision recognizes as much when it acknowledges efforts to combine cellular and GPS. MobileVision argues that many AVM subscribers will not feel cost-justified in purchasing cellular service merely to obtain voice services incidental to vehicle location. But then MobileVision proceeds right into a *non sequitur* by arguing that the GPS-cellular combination will put it at a "competitive disadvantage." Ex Parte Submission at 5-6. What MobileVision conveniently ignores is that the GPS-cellular marriage does not prevent cellular from being combined with vehicle location or prevent MobileVision from reselling cellular or some other land mobile voice service in such a way as to overcome the economic concerns of subscribers that individually do not feel justified in subscribing to cellular systems.

C. Transition Provisions Should Not Be Used to Confer Exclusivity

Because MobileVision suggests that it cannot share, it would appear that it obtained its licenses under false pretenses. Accordingly, it would seem appropriate for MobileVision to turn in its licenses. Not surprisingly, MobileVision has no such intentions. But this does not mask the audacious nature of its proposed transition provisions: co-channel licensees in each market would engage in a race to construct, the winner taking home an exclusive license without the need to pay for it.

By seeking the option of converting its shared licenses into exclusive authorizations, MobileVision hopes to overcome its inability to comply with the existing rules. In fact, because it seeks to reinvent the nature of its authorizations, MobileVision does not truly seek grandfathering. It seeks a windfall.

Specifically, MobileVision requests a period of time following the issuance of a Report and Order to allow wide-area AVM licensees "to obtain financing, re-engineer

systems and complete deployment."⁷ MobileVision would prefer a three-year period to accomplish these tasks, without regard to current license expiration dates,⁸ but would now accept an eighteen-month period. *Ex Parte* Submission at 7. Those systems that are constructed and in operation within the allowed time frame (three years or eighteen months) and that otherwise comply with the wide-area AVM rules would be "grandfathered, issued permanent *exclusive* licenses and protected from co-channel interference" within a seventy-mile radius. August 12, 1994, *ex parte* at 6-7. Auctions, if any, would take place after the transition period in those areas where existing licensees had not built by the end of the grandfather period.

MobileVision's plan, contemplating exclusive use for existing licensees that build-out their systems within a specified time frame, leaves a lot of important issues unaddressed. For example, if sharing is to be abandoned, what determines who qualifies as the exclusive licensee in the many markets where there are now two or more wide-area AVM licensees? As the Commission is aware, licenses are held within the 918-926 MHz band by MobileVision in over one hundred markets, by Pinpoint in twenty large markets, by Uniplex in approximately 50 of the largest markets. Southwestern Bell, Location Services for Automatic Vehicle Monitoring (Roger Linquist), and Spydernet also hold licenses in one or more large markets. If the determining mechanism is a "race to construct," what are the criteria to be by which the winner of the race is determined? Teletrac earlier had suggested such a scenario, which raised numerous fundamental implementation questions.⁹ These

⁷ Letter from John J. McDonnell, Counsel for MobileVision, to William F. Caton, Acting Secretary, dated October 13, 1994. It is not clear to what extent MobileVision would have to reengineer its system to operate in a 5.5 MHz sub-band (921.75-927.25 MHz). It would appear that MobileVision would simply have to reduce the number of voice channels it intends to use and maintain its 4 MHz location pulse.

⁸ Letter of Marnie K. Sarver, Counsel for MobileVision, to Wm. F. Caton, Acting Secretary, FCC, dated August 12, 1994.

⁹ See Comments of Pinpoint on *Ex Partes*, PR Docket No. 93-61, at 31 (filed March 15, 1994). What are the standards by which the first systems to be built will be measured? If the standard, for example, is a specific number of "paying units," what is a paying unit? What if a second or third co-channel system achieve the goal on the same day? How is sharing accomplished before any system has the requisite number of paying units? If multiple systems can share before they have the requisite number of

(continued...)

possibly intractable quandaries would be avoided were all qualified applicants required to share the spectrum on a co-primary basis as required under the interim rules. They could also be avoided if auctions were conducted in one sub-band and sharing were required in another sub-band of the AVM spectrum, as suggested by the Pinpoint Modified NPRM Band Plan proposals.¹⁰

Furthermore, contrary to MobileVision's assertions that no rights will be granted to existing licensees under its recent transition proposal, October 13, 1994, *ex parte*, *supra* n.7, at 3, the modification of existing licenses in shared spectrum to exclusive status confers considerable rights and raises serious questions under *Ashbacker v. FCC* as Pinpoint explained at length in its initial Reply Comments in this rulemaking.¹¹ Furthermore, such a mechanism would most certainly reward what can only be construed as warehousing. MobileVision is poised to be successful merely because it obtained hundreds and hundreds of licenses requiring sharing apparently with no intent to construct a single one absent assurances of exclusivity. Only its earlier profligate applications for authorizations in shared spectrum, when there is no reason to apply until one is ready to construct, will have put it in a prime position to seize the opportunity for exclusivity that the MobileVision plan would create.

Ironically, the MobileVision plan, because it would reward those who indiscriminately applied for licenses in earlier years, would achieve the same result of which MobileVision elsewhere has complained. In particular, MobileVision has opposed the Southwestern Bell auction proposal that would have the FCC revoke all unbuilt licenses granted eight months or more before a Report and Order. MobileVision's reason: small entrepreneurial companies would be shut out contrary to the requirements of Section 309(j) of the Communications

⁹(...continued)

units, why can they no longer share if one or more systems has that number of units? Clearly, the problems with determining the winners in a "race to exclusivity" are significant and likely to inject the FCC into fractious litigation over factual issues.

¹⁰ Under these proposals, 904-912 or 902-912 MHz could be auctioned while 918-926 MHz (or more spectrum) is time-shared among wide-area systems and shared on a height-power-differential basis between wide-area and local-area AVM systems. Alternatively the lower band could also be shared, possibly on a basis other than time-sharing.

¹¹ See Reply Comments of Pinpoint, PR Docket No. 93-61, at 31-45 (dated July 29, 1993).

Act.¹² Obviously, because MobileVision is poised to shut out Pinpoint and other small companies such as Uniplex in virtually all of the top 100 markets due to its gluttonous licensing appetite under sharing rules -- rules it claims it cannot adhere to -- MobileVision will achieve the same result as would Southwestern Bell

CONCLUSION

As the Commission draws nigh to a decision in this proceeding, it should remain mindful of the distortions and mischaracterizations rampant in MobileVision's *ex partes* concerning Pinpoint's system and the record on sharing. Four of the five wide-area AVM proponents in this proceeding have stated in the record that they can share. Sharing among wide-area systems should be maintained under the permanent rules. Moreover, in order to give the American people the benefit of competitively provided vehicle location in this unique band, it should disallow voice operations of the scope prepared by MobileVision. Finally, if there are to be any auctions in the 902-928 MHz band, any transition period in the 902-928 MHz band, should involve true grandfathering: existing licensees, which are under an obligation to share, should be permitted to construct their systems in the markets in which they have licenses *on a shared basis*.

¹² Letter from John J. McDonnell, Counsel for MobileVision, to William F. Caton, Acting Secretary, at 2-3, dated November 18, 1994.

William F. Caton
December 19, 1994
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An original and one copy of this written *ex parte* presentation is being filed as required by Section 1.1206(a)(1) of the FCC's Rules.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "David E. Hilliard", written over a circular stamp or seal.

David E. Hilliard
Edward A. Yorkgitis, Jr.

cc: Chairman Reed E. Hundt
Commissioner Andrew C. Barrett
Commissioner Rachelle B. Chong
Commissioner Susan Ness
Commissioner James H. Quello
Ruth Milkman
Lauren J. Belvin
David R. Siddall
Jill M. Lockett
James R. Coltharp

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F. Ronald Netro
Rosalind K. Allen
Martin D. Liebman

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JUN 29 1993

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of)

)
Amendment of Part 90 of the)
Commission's Rules to Adopt)
Regulations for Automatic Vehicle)
Monitoring Systems)

PR Docket No. 93-61
RM 8013

TO: The Commission

**INFORMAL COMMENTS OF SOUTHWESTERN BELL MOBILE
SYSTEMS, INC. CONCERNING NORTH AMERICAN TELETRAC
AND LOCATION TECHNOLOGIES INC.'S APPLICATION FOR FREEZE**

Southwestern Bell Mobile Systems, Inc. ("SBMS"), by its attorneys and pursuant to Section 1.41 of the Commission's Rules, 47 C.F.R. §1.41, hereby submits informal comments concerning the Application for Freeze ("Application") filed by North American Teletrac and Location Technologies, Inc. ("Teletrac") in the above-captioned proceeding. Teletrac seeks to have the Commission freeze further grants of automatic vehicle monitoring ("AVM") licenses and special temporary authorizations in the 904-912 and 918-926 MHz bands pending completion of the captioned rulemaking.^{1/} As demonstrated below, Teletrac's Application is without merit and should be denied. In support of these comments, the following is respectfully shown:

^{1/} On April 9, 1993, the Commission released a Notice of Proposed Rulemaking ("NPRM") in this proceeding, 8 FCC Rcd 2502 (1993). In the NPRM, the FCC seeks to expand the scope of AVM service and to redesignate the service as the Location and Monitoring Service ("LMS"). Teletrac's Application would affect licensing under the current AVM rules. Accordingly, SBMS will refer to the service involved as AVM throughout this document.

Teletrac suggests that "without a freeze, continued licensing of narrowband systems in the wideband allocation will increase the potential for interference and actual interference."^{8/} Many licensees, however, have already gone on record to state that their technologies can function in a multi-operator shared environment without harm.^{9/} SBMS shares their view.^{10/} Furthermore there is no exclusive wideband allocation in the AVM band. Given the preconditions for grant of Teletrac's applications, i.e., a willingness to share the spectrum and to cooperate with other in-band licensees in good faith to avoid interference, there is no basis for the agency to protect a right which Teletrac never had.

In a shared spectrum environment, it is only natural that additional licensing will, at least theoretically, increase the possibility of interference. This is exactly why SBMS has designed

received during the pendency of a rulemaking subject to its outcome. See Amendment of Parts 2, 22 and 25 of the Commission's Rules to Allocate Spectrum for, and to Establish Other Rules and Policies Pertaining to the Use of Radio Frequencies In A Land Mobile Satellite Service For The Provision of Various Common Carrier Services, Report and Order, 2 FCC Rcd 1825, 61 Rad. Reg. 2d 165 (1986) (citing to Notice of Proposed Rulemaking in Gen. Docket No. 84-1234, 50 FR 8149 (Feb. 28, 1985) inviting interested parties to file applications for Mobile Satellite Service subject to the adoption of permanent rules). See also Amendment of the Commission's Rules Relative to Allocation of the 849-851/894-896 MHz Bands, Report and Order, 5 FCC Rcd 3861, 67 Rad. Reg. 2d. 1329 (1990).

^{8/} Application at 2.

^{9/} See e.g., Opposition of Pinpoint Communications, Inc. to PacTel Teletrac's Application for Freeze, RM No. 8013 (filed June 4, 1993) at 11 and comments cited therein; see also Comments of Southwestern Bell Corporation, RM No. 8013 (filed July 23, 1992).

^{10/} See Affidavit of Keith Rainer which is appended as Attachment A hereto.

BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

In the Matter of)
)
Amendment of Part 90 of) FR Docket No. 93-01
the Commission's Rules) R-0013
to Adopt Regulations for)
Automatic Vehicle)
Monitoring Systems)

TO: The Commission

AFFIDAVIT OF JUDITH PALMER

STATE OF MISSOURI)
)
COUNTY OF ST. LOUIS)

Keith Rainer, being duly sworn, deposes and says:

1. I am a member of the technical staff at Southwestern Bell Technology Resources, Inc. ("TRI"), where I have been an employee since 1990. At TRI I am involved in work on radio based communications systems and products. My specific areas of interest include indoor microcellular systems, outdoor and indoor wireless data systems, mobile location technology antennas, electromagnetic propagation modeling and measurements and radio communication protocols.

2. I have a bachelor's degree in electrical engineering which I received with honors from Auburn University. I also have an MS in electrical engineering which I received from the Georgia Institute of Technology. I have completed extensive graduate studies beyond my master's degree.

3. Following the completion of my bachelor's degree program in 1980, I began employment with Bell Telephone'

Laboratories. While at Bell Laboratories, I worked on the development of digital switches, circuit analysis programs, systems reliability analysis programs, coding for memory management and advanced signaling protocols. During this time period I also completed work on my master's degree.

4. In 1983, I left Bell Laboratories and began employment with the Georgia Institute of Technology ("Georgia Tech") as a member of the research faculty where I achieved the position of Senior Research Engineer. While at Georgia Tech I performed extensive research in the areas of applied electromagnetics and communication systems, taught continuing education courses on selected topics in electromagnetics, and was accepted into the electrical engineering doctoral program.

5. I have authored and co-authored numerous technical papers and reports on antennas and radio communications systems. I have received two Certificates of Recognition from NASA, an Industrial Design Achievement Award from Rogers Corporation and in 1989, the Outstanding Researcher of the Year Award from the Georgia Tech Research Institute. I am a member of the Eta Kappa Nu and Tau Beta Pi engineering honor societies.

6. I have reviewed the Application for Freeze filed by North American Teletrac and Location Technologies, Inc. ("PacTel") in the above-captioned matter and the Affidavit of Dr. Charles L. Jackson ("Jackson Affidavit") appended thereto.

7. Contrary to statements contained in paragraph 12 of Dr. Jackson's Affidavit, based on my personal observation and testing, wideband (spread spectrum) communication systems can

operate reliably co-located (i.e. in the same geographic area and in close proximity) on a co-channel basis in the 902-928 MHz ISM band. This is not to say that in general all wideband (spread spectrum) communication systems will operate reliably co-located (i.e. in the same geographic area and in close proximity) on a co-channel basis in the 902-928 MHz ISM band or that under certain circumstances any will operate reliably. Reliable co-channel operation of co-located wideband systems is dependent on the system design, method of system operation, and the local radio environment. Contrary to statements made in Dr. Jackson's Affidavit, it does not always require one system to have any particular information about the other system(s).

It is my opinion that Southwestern Bell Mobile Systems, Inc.'s ("SBMS") technology can operate reliably in the shared radio environment of the upper LMS band in the 902-928 MHz ISM band, given today's environment and the existence of current licensees. In particular, it is my opinion that SBMS' LMS system can operate reliably in the shared radio environment that exists today co-located with other systems currently operating in the same bands.


Keith Rainor